IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

PFLUECKEr, et al.:		Group Art Unit:	4162
Serial No.:	10/565,214	Examiner:	Colette Nguyen
Filed:	January 20, 2006 March 26, 2009 (additional data on page 3)		
For:	Nanoparticulate UV Protectant with Silicon Dioxide Coating		

DECLARATION UNDER 37 C.F.R. § 1.132

Assistant Commissioner for Patents
Alexandria, Virginia 22313-1450

SIR:

I, Bernd Hirthe, am a citizen of the Federal Republic of Germany residing at Toenisvorst, Germany;

I am a chemical engineer by training and experience and I am inventor of the pending patent application Serial No. 10/565,214.

I hereby declare that I supervised the following experiments:

Comparative data to the product according to Example 2d of the pending patent application were created with two market products Maxlight TS-04® of Showa Denko with 67% TiO_2 and 33 % Silica and Maxlight F-TS-20® of Showa Denko with 80% TiO_2 and 20% Silica.

Comparative example 2e:

1 l of the aqueous hydrochloric acid suspension of TiO_2 from Example 1a (page 51) is brought to a pH of 9,0 using NaOH and heated to 80°C. 52 ml of water-glass solution (corresponding to 384 g of SiO_2/l) are subsequently added to the suspension. The pH arise to about pH 10,6. When the addition is complete, the pH is regulated by the addition of H_2SO_4 to pH 6,5 and the mixture is stirred at pH = 6,8 and 80°C for 2 hours. The product is subsequently washed to a conductivity of less than 100 µS/cm and dried.

1. Photoactivity test – description of test system as of enclosure 1 to the declaration

Photoactivity-Test (Light Sensitive Color Difference)		dE*
Example 2d	Hydrothermal 180°C	2,0
Example 2e	Hydrothermal 105°C	16,5
Maxlight TS-04		7,6
Maxlight F-TS20		5,5

Photoactivity-Test (Light Sensitive Color Difference)

Receipe: Formulation BCI

Irradiation: 1h 765W/m² (ATLAS Suntest CPS+)

Measurement: L*a*b* (Kollmorgen CE7000)

Formula: $\Delta E^* = [(L^*_{after} - L^*_{before})^2 + (a^*_{after} - a^*_{before})^2 + (b^*_{after} - b^*_{before})^2]^{1/2}$

The inventive TiO_2 according to example 2d has significantly better dE-values in comparison to the other products which mean that the greying of the products is decreased.

Another effect of the hydrothermal treatment is the displacement of the UV absorption to UV A absorption.

2. Better UV A absorption in a clear coat

The test system is described in enclosure 2 to the declaration
Results:

	max. Absorption / Extinction at	Extinction coefficient UV-A ($g^{-1}cm^{-1}$) (at 350nm) *1)	
Hydrothermal treatment at 105°C	286 nm	13,6	reference
Hydrothermal treatment at 150°C	294 nm	18,4	+ 35%
Hydrothermal treatment at 180°C	300 nm	22,2	+ 63%
Hydrothermal treatment at 225°C	304 nm	-	-

***1) – additional data added on march 26th, 2009**

The shift to higher wavelength of the max. absorption leads to better UV-A protection and to better UV-A/UV-B ratio.
Although less likely than UVB to cause sunburn, UVA penetrates the skin more deeply, and is considered the chief culprit behind wrinkling, leathering, and other aspects of "photoaging." The latest studies show that UVA not only increases UVB 's cancer-causing effects, but may directly cause some skin cancers, including melanomas.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date:

26.03.2009

Bernd Hirthe